

Powledge Expert Report Assessment

Bruce R. Bowman:

Mr. Bowman's report inaccurately states the opinions and conclusions that I provided in my report.

For example, Mr. Bowman claims, "*Mr. Syson states that the front brakes of the subject vehicle did not operate due to overheat.*" I did not make any such statement. I indicated that the heating of the brake pads is consistent with brake application.

Mr. Bowman also suggests, "*Mr. Syson states that a rolling tire, without braking does not leave marks in the grass. The demonstrations at both high speed and low speed clearly shows that a rolling tire does leave marks in the grass.*" I did not make any such statement. I indicated that, at the scene of this accident, several other vehicles drove across the grass leaving no markings similar to those left by the Powledge Malibu; therefore, at this accident site, the condition of the subject vehicle caused it to leave the marks. The fact that Mr. Bowman was able to leave marks at various speeds at an entirely different location under circumstances without documented similarity to the collision site and where the grass appears to be dead, rather than alive, further confirms that the Powledge vehicle was not operating in a way demonstrated in the tests, nor was it operating like the other vehicles at the scene.

He misquotes my report, again, in the next paragraph, "*Mr. Syson states that because the brake pedal pad is bent, that it is proof Mr. Powledge was pushing hard on the brake pedal.*" I did not make any such statement. I said that the brake pedal deformation almost conclusively proves that Mr. Powledge had his foot on the brake pedal at the time of the impact. Mr. Bowman's analysis of the brake pedal damage and test data regarding the bending of the brake pedal are entirely consistent with my statement.

Mr. Bowman states the following opinions:

"1) The brake system on the subject 2004 Chevrolet Malibu Classic was not defective at the time of this accident.

2) The proximate cause of the accident was not the brake system.

3) The accident was caused by driver."

These opinions are not supported by his testing or analysis. His tests show that a non-defective brake system will stop a Malibu operating at wide-open throttle. His tests further show that the Powledge Malibu was not just driving through the grass at the scene. His tests also serve to confirm that Mr. Powledge had his foot on the brake at the moment of impact. His tests, combined with the scene evidence prove conclusively that Mr. Powledge was NOT the cause of the collision, since the evidence at the scene shows that Mr. Powledge was making every effort to avoid the objects in the median, until the left tire and wheel damage reduced his ability to keep the vehicle under control.



Dr. James W. Lighthall

Dr. Lighthall comments on eyewitness testimony, "*No brake lights were observed on the Powledge vehicle that would indicate braking prior to impact.*" Dr. Lighthall implies that the testimony is only consistent with Mr. Powledge not applying his brakes. There are other equally likely explanations, including the fact that the witnesses were not in a suitable position to observe the Malibu's brake lights, that they weren't paying close attention, that the movement of the vehicle distracted their attention from the brake lights, or that the electro-mechanical problem causing the vehicle's throttle to stick open was affecting the brake lights, as indicated by several GM throttle control recalls.

Eyewitness testimony is often difficult to treat as reliable. Mr. Rick Accurso, for example, states on page 23 of his deposition that he wasn't even looking for brake lights. His wife, Linda Gilman, says on page 19 of her deposition that she's certain there were no brake lights, while on page 20, despite that certainty, she failed to observe Mr. Powledge steering around at least two objects in the median. She also indicates that the Powledge Malibu was so far ahead of her that she couldn't see his license plate, yet she had a clear view of his brake lights. Mr. Klibert says in his deposition that he didn't see any brake lights, but he also has Mr. Powledge striking the wrong side of the Gilman/Accurso vehicle. Ms. Gilman describes Mr. Powledge as being in the vehicle, while Mr. Klibert describes him as being thrown out. Mr. Klibert says there was lots of traffic, while Ms. Gilman describes traffic as being light. Mr. Klibert indicates that Mr. Powledge slowed after striking the Gilman vehicle, but Ms. Gilman and Mr. Accurso describe no such slowing. Mr. Klibert, like Ms. Gilman, fails to observe Mr. Powledge steering around various objects in the median.

Dr. Lighthall says in his report, "*Emergency braking concomitant to a severe frontal impact results in fracture/dislocation of the ankle and displacement of the bones of the ankle into the lower leg. The forces associated with this type of displacement cause the bones of lower leg, the tibia and fibula, to fracture. The resultant lower leg injury is a segmental spiral fracture termed a Pylon fracture. There is inconsistent information in the coroner's report; regardless, there is no indication in the report of an ankle fracture or fractures of the lower leg.*" Mr. Powledge's lower right and part of his upper right leg was separated. The right lower leg (the part which might be fractured) is missing.

Dr. Lighthall says, "*Photographs of the path of travel of the Powledge vehicle taken at the accident scene are straight and true, indicating the driver did not attempt to make any evasive maneuver, either through braking or steering, to avoid impact.*" This statement is so clearly false as to render any further statements by Dr. Lighthall moot. It is obvious, based on the fact that he failed to note Mr. Powledge's injury pattern in the scene photos, that Dr. Lighthall did not look at the scene photographs carefully. As noted above, the police photographs and accident diagram clearly show Mr. Powledge driving around obstacles, until impact with a drain damages his left front wheel and tire.

The remainder of Dr. Lighthall's report serves only to speculate why Mr. Powledge drove in a "straight" path, based on his erroneous interpretation of the scene evidence.

David G. McKendry

Mr. McKendry, like Mr. Bowman, comments on the Malibu's brake system capability. *"However, the vehicle's brake system is designed to be able to overpower the engine, even at a wide open throttle condition and at high speeds, and bring the vehicle to a controlled stop. This has been demonstrated by me and others on various vehicles, including an exemplar demonstration with a 2004 Chevrolet Malibu Classic in January, 2009, and has always resulted in the vehicle coming to a controlled stop."* This statement is deceptive. It presupposes that the driver recognizes that the brakes are working, and makes no attempt to pump the brake pedal to, for example, try to disconnect the cruise control. In every vehicle that I have tested, pumping the brakes several times depletes the vacuum boost and makes it very difficult to even slow the vehicle, never mind stop it. If the engine is running at a high load, such as traveling at high speed, there is no vacuum available to replenish the booster. Many vehicles have vacuum pumps, or vacuum reservoirs to compensate for these conditions. For example, GM provided vacuum pumps on numerous vehicles in the 1980's to provide supplemental vacuum to run the cruise control, since those engines produced so little vacuum under load. Volvo, VW and others provide vacuum reservoirs to provide multiple brake applications under heavy loads.

On page 5 of his report, Mr. McKendry asserts, *"Mr. Syson states that the throttle body was found to be stuck open at about 70-80% of full throttle. This can happen when a throttle is being kept open at the time of a collision due to mechanical damage and stress that occurs during an accident."* This statement, obviously, begs the question. If, as the physical evidence demonstrates, Mr. Powledge has his right foot on the brake pedal, what is keeping the throttle plate open at 70-80% of full throttle, if and when the collision damage traps it?

On page 6 of his report, he says, *"Mr. Syson claims his Attachment C contains 'a number of customer complaints from other Ecotech engine based vehicles' including some noting problems with the throttle return spring. The references to 'return' that were found in the attachment were about the customer not having returned the vehicle to the dealer. The references to spring seem to be referring to, cities such as Spring Valley, High Springs, and Citrus Springs."* This paragraph misquotes my report, in much the same way that Mr. Bowman did. I never said that the customer complaints about cruise controls mentioned anything about throttle return springs. I said that, if the reports were accurate, the throttle return springs weren't working to close the throttle as required by the FMVSS.

Mr. McKendry goes on to review the various features of the stepper motor cruise control that serve to prevent undesired opening of the throttle, and to permit the throttle to close if the brake pedal is applied, or the cruise switch is turned off. One of the things he mentions is *"Asynchronous resets for oscillator failure, low voltage, and watchdog circuitry."* What he fails to mention is that these features are built into the Phillips 80C51 microcontroller, which is sensitive to EMI, and specifically NOT recommended for safety-critical systems. This collision occurred near the Houston Space Center where there are high-powered transmitters. EMI can "freeze the circuit operation" of this chip.

Numerous GM vehicles have similar features. Many have stepper motor cruise controls. There are 14 recalls of GM vehicles with cruise controls since 1988. Only one relates to a problem that would not affect proper stepper motor cruise operation. GM uses stepper motor cruise controls in millions of vehicles, but hundreds of thousands have been recalled. Therefore, one cannot conclude, based on the presence of features in the throttle control system that don't always work, using a microprocessor that is not recommended for such uses, that the throttle control system did not malfunction in the Powledge case.

Karl Stopchinski

Mr. Stopchinski makes a number of statements in his report that are inconsistent. On page 3 for example, he makes two statements that are not in complete agreement. First, he states, *"Another group of objects in the grassy median along the vehicle path is comprised of an access panel, a concrete bordered drain, and reflector post that are about 700 feet from the final impact point. The Powledge vehicle drove along the west side of these objects while remaining in the grassy median."*

On that same page he contradicts that statement, *"The vehicle then travelled (sic) another approximately 700 feet, crossed the concrete drain..."* On page 4, he compounds the inconsistency, *"Police photographs showing their condition reveal minor localized deformation of wheel on the inboard flange and adjacent abrasions and/or cuts on the tire. There was nothing along the vehicle's path prior to impact that would cause this type of damage."* The wheel damage is certainly more than minor, and it was clearly caused by impacting the drain some 700 feet prior to impact.

Mr. Stopchinski also makes comments about the throttle being stuck in the open position, *"A section of the throttle body including the throttle valve and lever that had been broken free from the vehicle was inspected. It was not burned. The throttle section was fractured from the intake manifold and a portion of the inlet tube was attached. This inlet tube was removed and photographed. The throttle valve shaft was deformed and the throttle lever was broken from the shaft. The throttle valve was found fixed in an open position greater than full throttle. In my opinion, no conclusion can be made about the position of the throttle at impact based upon its current position. The extreme vehicle damage and movement of the throttle body and connected components that occurred during the impact likely forced the throttle lever/valve past the fully open position, deforming and pinning it in place. The return springs remained approximately in place and would have forcefully acted on the throttle lever to close the throttle in its normal operating condition. The cable mounting bracket was attached and deformed and a portion of the accelerator pedal cable remains attached to the bracket. The accelerator cable was ripped apart in the crash."* This statement makes no engineering sense. Since the throttle shaft is bent, the throttle must have been open, when the damage occurred. Besides, there are no stock Malibu vehicles that I am aware of that can travel 80 to 90 miles per hour without the throttle plate being open.

Mr. Stopchinski also indicates that the impact of the sign support is 6" to the left of the Malibu centerline. In a central impact, the Malibu throttle body is literally the first mechanical engine component to be struck by the support. Obviously, the force of the initial impact bent the throttle shaft rearward while the throttle was open. The throttle body was disassociated from the wreckage and not burned, consistent with it being thrown clear in the initial impact. It would be impossible to bend the throttle shaft with cables when it is detached from its mount.

Mr. Stopchinski notes that there are numerous ways that a driver may be able to cope with a stuck throttle condition, *"The incident vehicle's equipment, by design, has safeguards that were in place and would have been functional in this vehicle at the time of this event to prevent actuation of the throttle by any means other than the driver. In any event, the incident vehicle contained design features that are effective in stopping a moving vehicle including release of the accelerator pedal, moving the gear shift selector lever to Neutral or Park, or simply turning the ignition key to off. Of course, use of the brake will prevent the vehicle from accelerating and traveling at a high speed as occurred in this incident."* These are interesting hypotheses, but his own tests show that they would be generally ineffective, or unlikely to be applied by a driver within the few seconds that would be available to avoid a collision. Assuming the vehicle is traveling 80 to 90 miles per hour that is roughly 125 feet per second. Given test data showing at most 3 to 4 feet per second deceleration while coasting on grass, he'd still be traveling over 100 feet per second (about 70 miles per hour) when he hits the sign support, if he puts the shift lever in neutral or park or turned off the ignition at that time.

The brake system won't work to slow the vehicle, if he has pumped the brakes and the throttle remains open, or he cuts the ignition. If he cut off the ignition, at the point where steering became difficult, he could accidentally lock the column. In my experience with cases involving stuck throttles, very few people turn off the key, because of the above concern with the anti-theft feature.

My testing shows that braking power can be maintained under the circumstances of multiple brake application and low engine vacuum due to an open throttle or stalled engine, only if there is an electrical vacuum pump, or large vacuum reservoir in the system. Both technologies were readily available and in use on vehicles in 2004.

Summary

None of the defense experts provides a reasonable explanation for this collision. At the moment of impact, Mr. Powledge had his right foot on the brake, yet the throttle was still open. None of the defense experts provides a reasonable explanation for the throttle position or the brake pedal damage. The only explanation provided is that Mr. Powledge was having a medical problem, or was trying to kill himself and four innocent children. Neither explanation is consistent with Mr. Powledge's general mental and physical health.

Neither a medical problem nor suicidal tendencies is consistent with Mr. Powledge's driving for more than half of the vehicle's off-road excursion. Then, the only injury producing contact occurs after the left front wheel and tire are damaged, and the vehicle becomes less controllable.

Safer alternative designs, such as a vacuum reservoir or electrically driven vacuum pump were readily available, and would have made the vehicle ACTUALLY perform the way the defense experts CLAIM it would.